

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Review of Regulatory Requirements for)	CC Docket No. 01-337
Incumbent LEC Broadband)	
Telecommunications Services)	

COMMENTS OF THE DSL FORUM

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The DSL Forum thanks the Federal Communications Commission for the opportunity to provide comments in its recent *Review of Regulatory Requirements for Incumbent LEC Broadband Telecommunications Services*.¹ This inquiry, in addition to other recently initiated proceedings, should assist the Commission to establish an appropriate regulatory framework to promote innovation and investment in broadband infrastructure and increase access to advanced telecommunications services for all Americans.

The DSL Forum is a consortium of more than 280 leading industry telecommunications, equipment, computing, networking and service provider companies, including incumbent and competitive carriers. Established in 1994, the DSL Forum continues its drive for a mass market for DSL, to deliver the benefits of this technology to end users around the world over existing copper telephone wire infrastructures. Details about forthcoming events, the DSL Forum and DSL are available at www.dslforum.org with information for end users at www.dsllife.com.

Throughout its seven years, the DSL Forum has worked on defining the core technology as it develops, providing inputs to international standards bodies and on establishing processes to deliver maximum effectiveness in the deployment and use of DSL. The Forum is focused on the complete portfolio of digital subscriber line technologies designed to deliver ubiquitous broadband services for a wide range of situations and applications that will continue the transformation of our day-to-day lives in an on-line world. The DSL Forum's efforts in the technical realm are intended to make DSL easier

¹ *Review of Regulatory Requirements for Incumbent LEC Broadband Telecommunications Services*, CC Docket No. 01-337, Notice of Proposed Rulemaking, FCC 01-360 (rel. December 20, 2001).

and cheaper to use for consumers, simplifying, for example, consumer self-installation, allowing carriers to keep average customer costs down, and thereby making DSL more widely available to the residential mass market.²

DSL is one of the most attractive means for broadband access to areas currently lacking broadband access. The DSL Forum white paper entitled “*DSL Anywhere*” identifies technical methods to enable broadband access to over 99% of customers.³ In some areas, however, it will cost much more to provide the access facilities. For example, as the Commission noted in its third inquiry into advanced services availability in the United States, the costs for business consumers to obtain advanced services capability in rural or remote areas may be prohibitively high.⁴

DSL is vital to providing broadband services to many areas. Over 4 million customers in the United States were served by DSL by the end of the year 2001, with Canada breaking the million-subscriber mark for the first time.⁵ Independent data, including that from TeleChoice and Point Topic, indicate that by end of year 2001 at least 15 million DSL lines will be in use around the world. There are now more DSL broadband lines in use

² A list of DSL Forum Technical Reports is attached to these comments. For example, Technical Report No. TR-044, *Auto-configuration for Basic Internet (IP-based) Services*, published December 2001, describes the features recommended to automatically configure connections between customer premises equipment and Internet services, focusing on the requirements across the DSL local loop.

³ http://www.dslforum.org/about_dsl.htm.

⁴ *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans*, CC Docket No. 98-146, Third Report, FCC 02-33 (rel. Feb. 6, 2002) (*Third 706 Report*), para. 92. In addition, in discussing rural communities generally, the FCC noted that a recent survey of rural subscribers identified several major barriers to expanding advanced services, including loop length, the high cost of deployment, low consumer demand, and the lack of equipment scaled for smaller companies. It concluded that 25 to 30 percent of rural telephone subscribers are not likely to have access to broadband providers in the near future. *Id.*, at para. 113.

⁵ North American DSL Market Reaches 5.5 Million, According to TeleChoice, February 12, 2002. http://www.telechoice.com/newsdetail.asp?news_id=313.

around the world than cable modem lines. In Europe alone, according to data recently published by the European Competitive Telecommunications Association,⁶ there were twice as many customers connected by DSL broadband than by cable. Current deployment rates in Europe are likely to widen this gap.⁷

In the United States, however, there are currently more cable modem subscribers than DSL customers, and cable continues to exploit its first-mover advantage.⁸ The DSL Forum urges government entities and policy makers to encourage efforts to bring broadband services to consumers, as stated in the recent report of the National Academies' National Research Council.⁹ It is imperative to act quickly to build on the momentum in the DSL industry before the industry reassigns its resources elsewhere. In particular, public policy activities should promote DSL availability for areas without broadband access.¹⁰

Broadband services, starting at about 200 kb/s,¹¹ include high-speed Internet access,¹² telecommuting, gaming, audio and video content delivery, and other high bit-rate services that will be developed in the future. Advanced services and e-commerce based on

⁶ ECTA October 2001 update. http://www.ectaportal.com/uploads/486LLU_Scorecard_October01.xls.

⁷ *European Telcos Take Lead Over Cable In Broadband Race*, Dow Jones International News, January 15, 2002 (citing market analyst estimates that by 2006, 22 of 35 million (63 percent) of projected broadband subscribers will be served by DSL technology, with most of the remainder being served by cable modems).

⁸ *Get Wired: Why cable will beat the Bells in the race to wire your home*, Barron's, August 20, 2001.

⁹ Available at <http://www4.nationalacademies.org/news.nsf/isbn/0309082730?OpenDocument>.

¹⁰ Policy makers have noted the connection between high quality telecommunications infrastructure and economic survival for rural areas, calling it an issue of "haves and have-nots." See USA Today *Tech Report*, May 21, 1999, <http://www.usatoday.com/life/cyber/tech/ctf228.htm>; and Washington Post *Newsbytes*, January 4, 2002, <http://www.newsbytes.com/news/02/173403.html>.

¹¹ *Third 706 Report*, para. 9

¹² United States General Accounting Office, *Characteristics and Choices of Internet Users*, Feb. 2001, p. 25. <http://www.gao.gov/new.items/d01345.pdf>.

broadband access can be an important contributor to economic growth, and absolutely vital to some communities.¹³ Availability of a wider selection of broadband-based services and content via all methods of high-speed access can stimulate the broadband service take-rate, encourage the development of additional applications and devices, tailored for the rapidly changing ways in which people communicate.¹⁴

Since active competition exists among the various forms of broadband access, government regulators should treat all forms of access similarly. Countries, such as Korea, with government policies that exhibit minimal uncertainty and encourage and enable broadband deployment demonstrate the positive effects of a timely, stable, and well-defined regulatory environment. Attached is the U.K. Broadband Stakeholder Group “*Report and Strategic Recommendations*”, which identifies a number of key government goals for broadband. Significantly, these goals include removing regulatory and other barriers to ensure investment and innovation, putting broadband on the national agenda, committing the public sector to using broadband, and making broadband more widely available, including community locations.¹⁵ Further broadband penetration and

¹³ The Texas PUC sums up this succinctly: “[t]he majority of small rural communities face the twin challenges of attracting businesses and stemming the outflow of their residents to urban areas. Advanced telecommunications services may play an important role in addressing these challenges.” Texas Public Utilities Commission, *Report to the 77th Legislature on Availability of Advanced Services in Rural and High Cost Areas*, January 2001, (*Texas PUC Rural Report*), pps. 7, 36. The report also quotes former FCC Chairman William Kennard: (“[t]hese advanced broadband networks are the most important networks of our time. They have the power to make or break communities.”), p. 10, citing *Digital Exclusion* (NPR’s Morning Edition radio broadcast, Apr. 6, 2000). http://www.puc.state.tx.us/telecomm/projects/21166/21166arc/rpt77leg_asarcost.pdf.

¹⁴ National Telecommunications and Information Administration, Economics and Statistics Administration (U.S. Department of Commerce); *A Nation Online: How Americans are Expanding Their Use of the Internet*, February 2001, p. 39, noting continued growth in broadband among Internet users, and noting that “[m]ost striking, however, is the growth in the number of people who use the Internet from more than one location.” <http://www.ntia.doc.gov/ntiahome/dn/index.html>.

¹⁵ U.K. Broadband Stakeholder Group *Report and Strategic Recommendations*, November 2001, p. 14. The full report may be found at <http://www.e-envoy.gov.uk/ecommerce/broadband/index.htm>. A second

widely available “broadband-ready” infrastructure will generate what has thus far been latent interest from broadband applications providers.¹⁶ Economic benefits through job creation and other benefits will come as a result of broadband infrastructure deployment and the creation of ancillary services and applications critically dependent upon that infrastructure.¹⁷

The DSL Forum advocates a government role in the further development of broadband that encourages innovation through capital investment. The DSL Forum thus welcomes the Commission’s focus on finding a rational regulatory structure for broadband, delivered over multi-platform, competing service providers using new and emerging technologies. Significantly, the Commission has initiated these critical proceedings against the backdrop of a recession and a marked retreat by investors from telecommunications and related stocks. Technology innovators face the prospect of losing an entire generation of development and investment to carriers entrenched behind deployment objectives dictated by continuing regulatory uncertainty.

attachment from GIIF demonstrates the cross-elasticity between service price and take-rate and is included as an addendum hereto.

¹⁶ In testimony before Congress, Bear Stearns & Company technology analyst Douglas Ashton explained the reverse process by which wireline network transformation has thus far proceeded: “[w]e started the modernization process in the core of the network and are now only beginning to think about how it might happen at the edge (access). Simply put, we have modernized our highways but not our local roads, making it difficult to get on, go fast and go to the places we might want to go. Access is the platform on which broadband services have to ride and today it is the bottleneck. Without change here, we will not get much change anywhere.” Douglas Ashton, written testimony before the U.S. House of Representatives, Full Committee on Energy and Commerce, April 25, 2001.
<http://energycommerce.house.gov/107/hearings/04252001Hearing191/Ashton267.htm>.

¹⁷ *The Calm at the Center of a Roiling Economy*, Wall Street Journal, February 14, 2002 (Federal Reserve experts (Daniel Sichel, Stephen Oliner) and leading economists note increase in U.S. underlying productivity growth to approximately 2 percent a year, attributed in part to advances in computers and IT networking. This allows more for rapid response slowing economic conditions, limiting their duration).

The Commission should act quickly to reduce the regulatory transactional costs that continue to delay what should be a technology-centric, market-driven transformation of the traditional wireline telephone network. Technology and market forces should be the determining factor in broadband deployment rather than high regulatory costs. The appropriate regulatory regime for DSL broadband should entail the forging of simple, clear rules that know how to change when confronted with changing assumptions, including rapid advances in technology, and conceptions of distance and other “insurmountable” obstacles that suddenly become less relevant. In other words, this rules-based system must balance flexibility and certainty, and provide timely results.

The DSL Forum web sites (www.dslforum.org and www.dsllife.com) provide publicly available reference information to assist the understanding of DSL technology and its applications, including the following information:

- DSL Tutorials
- DSL Glossary
- *DSL Anywhere* Whitepaper
- *Internet Security* Whitepaper
- DSL Forum Technical Reports
- Current global statistics on the number of lines served by country.

The DSL Forum is working to enable broadband access to more consumers, and the DSL Forum stands ready to assist the Commission in this effort.

Respectfully submitted,

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Addendums:

- Current List of DSL Forum Technical Reports
- GIIF graph

Attachments:

- United Kingdom Broadband Stakeholder Group Report

Addendum: 1

Approved Technical Reports

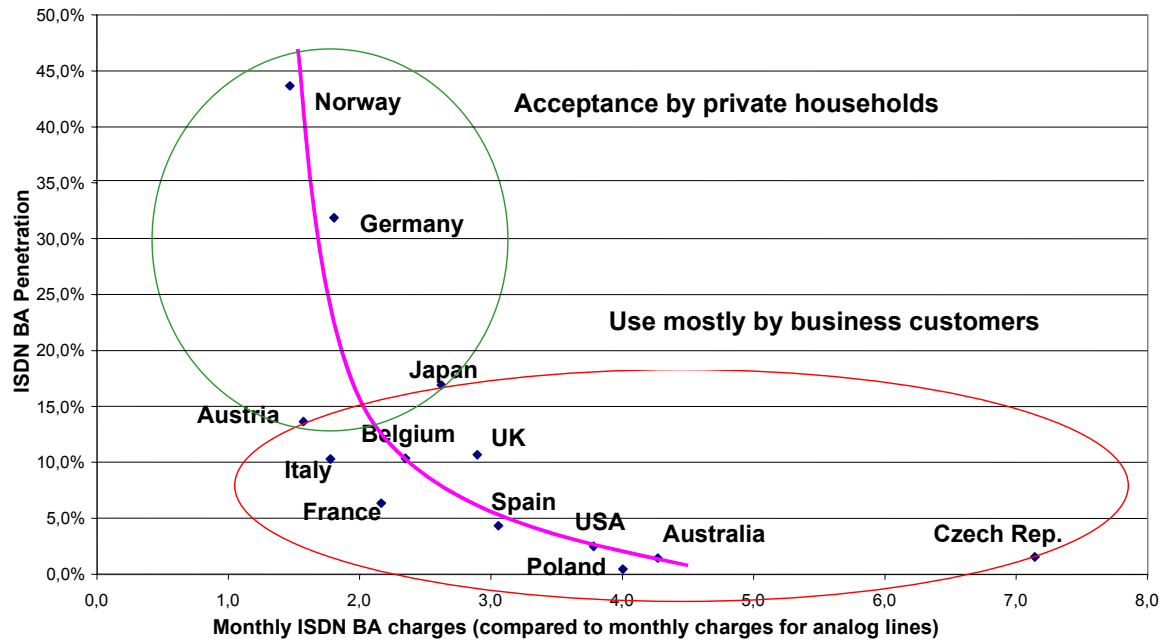
Report Number	Title (Word File)	Date	Additional Information
TR-047	DSL Service Flow-Through Fulfillment Management Interface	Feb 2002	
TR-046	Auto-Configuration: Architecture and Framework	Feb 2002	
TR-045	PPP Static Interoperability Testing	Feb 2002	
TR-044	Auto-Configuration for Basic Internet (IP-based) Services	Nov 2001	
TR-043	Protocols of the U Interface for Accessing Data Networks using ATM/DSL	August 2001	
TR-042	ATM Transport over ADSL	August 2001	Updated version of TR-017
TR-041	CORBA Specs for ADSL EMS-NMS Interface	June 2001	
TR-040	Aspects of VDSL Evolution	June 2001	
TR-039	Requirements for VoDSL	March 2001	Updated version of TR-036
TR-038	DSL Service Fulfillment	March 2001	
TR-037	Auto-configuration for DSL Broadband	March 2001	
TR-036	Requirements for Voice over DSL	August 2000	Includes Annex A (BLES)
TR-035	Protocol Independent Object Model for ADSL EMS-NMS Interface	May 2000	
TR-034	Proposal for an Alternative OAM Communications Channel Across the U Interface	May 2000	
TR-033	ITU-T G.992.2 (G.lite) ICS	May 2000	
TR-032	CPE Architecture	May	

	Recommendations for Access to Legacy Data Networks	2000	
TR-031	ADSL ANSI T1.413 - 1998 Conformance Testing	May 2000	
TR-030	ADSL EMS to NMS Functional Requirements	Feb 2000	
TR-029	ADSL Dynamic Interoperability Testing	Feb 2000	
TR-028	CMIP Specification for ADSL Network Element Management	Dec 1999	Updated version of TR-016
TR-027	SNMP-based ADSL LINE MIB	Nov 1999	Updated version of TR-006
TR-026	T1.413 Issue2, ATM-based ADSL ICS	Nov 1999	
TR-025	Core Network Architecture for Access to Legacy Data Network over ADSL	Nov 1999	
TR-024	DMT Line Code Specific MIB	Aug 1999	Updated version of TR-014
TR-023	Overview of ADSL Testing	Aug 1999	
TR-022	The Operation of ADSL-based Networks	Aug 1999	
TR-021	ADSL Forum Recommendation for ATM layer of ADSLs	May 1999	
TR-020	ADSL Forum Recommendation for Physical Layer of ADSLs without a Splitter	May 1999	
TR-019	ADSL Forum Recommendation for Physical Layer of ADSLs with a Splitter	May 1999	
TR-018	References and Requirements for CPE Architectures for Data Access	May 1999	
TR-017	ATM over ADSL Recommendation and (TR-017 Annex)	Mar 1999	Updated version of TR-002
TR-016	CMIP-based Network	Mar	Superceded by TR-028

	Management Framework	1999	
TR-015	CAP Line Code Specific MIB	Mar 1999	Definitions supplement the IETF ADSL line MIB, which was derived from TR-006
TR-014	DMT Line Code Specific MIB	Mar 1999	Superceded by TR-024
TR-013	Interface & Configurations for ADSL: Central Office	Mar 1999	
TR-012	Broadband Service Architecture for Access to Legacy Data Networks over ADSL ("PPP over ATM")	Sep 1998	
TR-011	An End-to-End Packet Mode Architecture with Tunneling and Service Selection	Jun 1998	
TR-010	Requirements and Reference Models for ADSL Access Networks: The "SNAG" Document	Jun 1998	
TR-009	Channelization for DMT and CAP ADSL Line Codes: Packet Mode	Mar 1998	
TR-008	Default VPI/VCI addresses for FUNI Mode Transport: Packet Mode	Mar 1998	Intended to complete paragraph 3.1.2 of TR-003, entitled "Address Assignment"
TR-007	Interfaces and System Configurations for ADSL: Customer Premises	Mar 1998	
TR-006	SNMP-based ADSL LINE MIB	Mar 1998	Superceded by TR-027
TR-005	ADSL Network Element Management	Mar 1998	
TR-004	Network Migration	Dec 1997	
TR-003	Framing and Encapsulation Standards for ADSL: Packet Mode	Sep 1997	
TR-002	ATM over ADSL Recommendations	Mar 1997	Superceded by TR-017
TR-001	ADSL Forum System Reference Model	May 1996	

Addendum: 2 (Source: GIFF)

Price and penetration example - The ISDN acceptance diagram



Source: E. Sutter, Alcatel, April 2000